

Bridge-Plate® Pipeline Crossing

Owner
Suncor Energy

Design Consultant
Jacobs Canada

Installer
Suncor Energy

Location
Fort McMurray, AB



Installation:

The Suncor Firebag SAGD (Steam Assisted Gravity Drainage) Development is located 90km northeast of Fort McMurray, Alberta. Once in operations it will produce approximately 35,000 barrels of oil per day. At two locations within the site, bridge structures were needed to provide access roads to cross safely over pipeline installations.

The design challenges at each crossing included supporting the structure on relatively weak soils (ie. Muskeg) and reducing the cover over the structures to an absolute minimum.

With the ability to model the structures with Finite Element Analysis, Armtec provided Jacobs Canada with a preliminary design providing two Bridge-Plate® box culvert structures with these design parameters:

- Span = 9.99m, rise = 2.89m
- Cover=650mm at centreline
- Live load = CS-750 off highway trucks

To support the structure on the weak soils, steel piles were driven along the footing strips and wingwalls. A concrete pile cap was poured at each footing location with a pre-installed steel channel to provide a positive connection between the Bridge-Plate® and the foundation. Following assembly of the plates, reinforced concrete collars were installed at either end of the 13.2m and 16.8m long structures.

An Armtec representative was on-site throughout the plate assembly and backfill process monitoring the deflection of the structure as work proceeded. Upon completion, concrete no-post barriers were placed directly on the gravel backfill to delineate the road surface.

With more potential crossings at this site, Armtec looks forward to providing more cost-effective pipeline crossings in the future.



Case History



Pipeline Crossings

Fort McMurray



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